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08/897,953	07/24/1997	HIDEHIKO KIRA	950107A	5157

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ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

GRAYBILL, DAVID E

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 9103

Application Number: 08/897,953

Filing Date: July 24, 1997

Appellants: KIRA ET AL.

William L. Brooks
For Appellant

EXAMINER'S ANSWER

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This is in response to the appeal brief filed 6-26-3.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

Appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

Appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The rejection of claims 3, 5, 6, 8 and 15-17 stand or fall together because appellant's brief does not include a statement that this grouping of claims **does not** stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

58-180091	MAEDA	10-1983
4-62946	SAKATA	2-1992
4-302444	KOGA	10-1992
5,548,091	DISTEFANO et al.	8-1996
5,115,545	FUJIMOTO et al.	5-1992

(10) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claims 3, 5, 6, 8 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda (English translation, JP58-180091), and Koga (JP4302444).

In the instant specification, at page 1, line 23 to page 2, line 22, appellant teaches as conventional a process comprising the steps of forming leveled projection electrode studs 14 on a semiconductor chip 11 by wire-bonding; forming conductive adhesive 16a on the electrodes by a conductive adhesive 16 that has been skidded on a plate 15a and then transcribed onto the

electrodes; applying a thermosetting insulating adhesive 18 to areas of mounting parts where the chip is to be mounted on a substrate 17; aligning the chip to the mounting parts at a first stage and performing a first fixing of the chips with a first pressure by a bonding head to which the chip is absorbed; and thereafter, heating the substrate on which the chip is fixed with a thermosetting temperature of the adhesive.

However, appellant does not appear to explicitly teach as conventional a process comprising a plurality of chips, and the steps of heating the adhesive on the substrate with a half-thermosetting temperature so as to harden the adhesive on the substrate to a half-thermosetting state by heating means; moving the substrate to a second stage, while the chips on the substrate are held at their position by the half-thermosetting state of the adhesive; and thereafter, heating at the second stage the substrate on which the chips are fixed.

Nonetheless, Maeda teaches this process at page 2, lines 19-20; page 3, line 22 to page 4, last line; page 6, antepenultimate paragraph to page 8, line 3; and page 9, first full paragraph. Moreover, it would have been obvious to combine the process of Maeda with the process of appellant's admitted prior art because it would enable accurate alignment of plural chips before the final fixing step of the conventional art.

Further, the combination of appellant's admitted prior art and Maeda does not appear to explicitly teach a process comprising wherein a second fixing is simultaneously performed for each of the chips with a second pressure, and wherein in the heating step (e) while heating the adhesive on the mounting parts a pressure is applied to the chips.

Nevertheless, in the English abstract and figures, Koga teaches a process comprising wherein a second fixing is simultaneously performed for each of plural chips with a second pressure, and wherein in a heating step while heating an adhesive on mounting parts a pressure is applied to the chips. Furthermore, it would have been obvious to combine the process of Koga with the process of the applied prior art because it would facilitate bonding.

Also, the combination of applied prior art does not appear to explicitly teach a process wherein the second pressure is greater than the first pressure.

Regardless, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative pressure because, as cited, the combination of the applied prior art teaches that a first and second pressure are result effective variables, and

appellant has not disclosed that the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the process would possess utility using another relative pressure. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

In the alternative, claims 3, 5, 6, 8 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda (English translation, JP58-180091), and Koga (JP4302444) as applied to claims 3, 5, 6, 8 and 15 supra, and further in combination with Sakata (JP4-62946).

The combination of appellant's admitted prior art, Maeda and Koga does not appear to explicitly teach a process wherein the second pressure is greater than the first pressure.

Notwithstanding, in the English abstract, partial translation, and figures, Sakata teaches this process. Furthermore, it would have been obvious to combine the process of Sakata with the applied prior art because it would enhance production yield.

To further clarify, Sakata teaches that the first pressure is 20 kg/cm² and the second pressure is about 20 kg/cm², and the range encompassed by the phrase "about 20 kg/cm²" encompasses a pressure greater than the first pressure of 20 kg/cm².

Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda and Koga, as applied to claims 3, 5, 6, 8 and 15, and further in combination with DiStefano (5548091).

The combination of appellant's admitted prior art, Maeda and Koga does not appear to explicitly teach a process comprising wherein, in the heating step (c), heating the adhesive is performed by a heat plate on which the substrate is placed.

Nonetheless, at column 9, lines 3-63, DiStefano teaches a process comprising wherein in a heating step, heating an adhesive is performed by a heat plate 58 on which a substrate mounting chips is placed. In addition, it would have been obvious to combine the process of DiStefano with the process of the applied prior art because, both processes are directed to the same purpose of heating an adhesive, and it would facilitate adhesive curing.

In the alternative, claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of

appellant's admitted prior art, Maeda, Koga and Sakata, as applied to claims 3, 5, 6, 8 and 15, and further in combination with DiStefano (5548091).

DiStefano is applied for the same reasons it is applied supra.

Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda and Koga as applied to claims 3, 5, 6, 8 and 15, and further in combination with Fujimoto (5115545).

The combination of appellant's admitted prior art, Maeda and Koga does not appear to explicitly teach a process comprising a heat block having a plurality of pressing/heating heads each of which is provided on the heat block corresponding to the mounting parts of the substrate.

Notwithstanding, as cited, Koga teaches a process comprising a heat block 25 having a plurality of pressing/heating portions each of which is provided on the heat block corresponding to the mounting parts of the substrate. Further, at column 6, line 52 to column 7, line 3, Fujimoto teaches a single bonding head 52 for each chip. Moreover, it would have been obvious to combine the process of Fujimoto and the process of Koga by providing the heat block 25 with a single head for each chip because it would enable a pressing force to

act evenly on each chip. Furthermore, it would have been obvious to combine the heat block of the combination of Fujimoto and Koga with the applied prior art because it would facilitate bonding.

Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of appellant's admitted prior art, Maeda, Koga and Sakata as applied to claims 3, 5, 6, 8 and 15, and further in combination with Fujimoto (5115545).

Fujimoto is applied for the same reasons it is applied supra.

(11) Response to Argument

Appellant states, "The Examiner has urged, however, that application of such pressure [presumably the first pressure] would be inherent in Maeda because Maeda teaches the use of a bonding head to mount the chips into the adhesive." This statement is respectfully traversed because appellant has not specifically identified the location of this alleged urging, and there is no support otherwise for this statement in the record. In fact, Maeda is not specifically applied to the rejections for this teaching. Instead, in the rejection of claims 3, 5, 6, 8 and 15 over the combination of appellant's admitted prior art, Maeda and Koga, only appellant's admitted prior art is specifically relied on for the teaching of the first pressure.

Appellant also contends that it would not be an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative pressure because it would entail "undue experimentation."

This contention is respectfully deemed unpersuasive because it is a vague and general statement in broad terms unsupported by evidence; hence, it essentially amounts to mere conjecture. Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989) (statement in publication dismissing the "preliminary identification of a human b - NGF - like molecule" in the prior art, even if considered to be an expert opinion, was inadequate to overcome the rejection based on that prior art because there was no factual evidence supporting the statement); In re Beattie, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992) (declarations of seven persons skilled in the art offering opinion evidence praising the merits of the claimed invention were found to have little value because of a lack of factual support); Ex parte George, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991) (conclusory statements that results were "unexpected," unsupported by objective factual evidence, were considered but were not found to be of substantial evidentiary value).

In addition, appellant states, "appellants do not understand the Examiner's assertion that the rejection on Sakata is an anticipation rejection." This statement refers to the following response to arguments in the prior Office action:

Also, appellant alleges that the limitation that the second pressure is greater than the first pressure is a critical limitation. This allegation is deemed to be unpersuasive because criticality cannot be relied on to overcome a rejection based on anticipation. Specifically, Sakata anticipates the instant claimed range; therefore, Sakata inherently teaches the alleged criticality. Furthermore, appellant originally disclosed and presently discloses (see for example the abstract) and claimed an embodiment of the invention not limited to the allegedly critical limitation. In fact, the claims were amended to include the allegedly critical limitation only after three office actions rejecting the claims and the filing of a continuing application, and as indicated in MPEP 2164.089(c), "Broad language in the disclosure, including the abstract, omitting an allegedly critical feature, tends to rebut the argument of criticality." In any case, it is respectfully submitted that criticality must be established by factual evidence, and not by mere argument. See, for example, *In re De Blauwe*, 736 F.2d 699, 222 USPQ 191, 196 (Fed. Cir. 1984), and MPEP 716.02(d), "Demonstrating Criticality of a Claimed Range To establish unexpected results over a claimed range, appellants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range. *In re Hill*, 284 F.2d 955, 128 USPQ 197 (CCPA 1960). To this end, the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Instead, the evidence relied on should establish "that the differences in results are in fact unexpected and unobvious and of both statistical and practical significance." *Ex parte Gelles*, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992). See also, *Ex parte C*, 27 USPQ2d 1492 (Bd. Pat. App. & Inter. 1992); *In re Nolan*, 553 F.2d 1261, 193 USPQ 641, 645 (CCPA 1977); and *In re Eli Lilly*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

To further clarify, although Sakata is applied in an obviousness rejection in combination with additional prior art, Sakata is applied in the combination for a teaching of a first and second pressure range that anticipates the claimed first and second pressure limitation. See MPEP 2131.03.

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Relatedly, appellant argues that Sakata "fails to teach that the second pressure is greater than the first pressure," because, allegedly, Sakata teaches that the first and second pressures are the same. This argument is respectfully traversed because the alleged teaching of Sakata that the first and second pressures are the same would not preclude the teaching that the second pressure is greater than the first pressure, because, given the teaching of the first and second pressure ranges of Sakata, the teachings would not be mutually exclusive. In any case, Sakata is explicitly and clearly applied to the rejection for the teaching that the second pressure is greater than the first pressure.

Also, in the "Request for Reconsideration," filed 7-23-2, page 5, lines 15-16, appellant asserts, "Accordingly, it is critical to the present invention that the second pressure is higher than the first pressure." And, in the brief, appellant complains that the allegedly critical limitation that the second pressure is greater than the first pressure, "appeared in claim 2 as originally filed, so it has been claimed throughout prosecution, despite the Examiner's protestations to the contrary."

This complaint is respectfully deemed unpersuasive and is traversed because appellant has not specifically identified the

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location of the alleged protestations, and there is no support otherwise for this complaint in the record. Nevertheless, the following relevant issue was presented in the prior Office action:

Furthermore, appellant originally disclosed and presently discloses (see for example the abstract) and claimed an embodiment of the invention not limited to the allegedly critical limitation. In fact, the claims were amended to include the allegedly critical limitation only after three office actions rejecting the claims and the filing of a continuing application, and as indicated in MPEP 2164.089(c), "Broad language in the disclosure, including the abstract, omitting an allegedly critical feature, tends to rebut the argument of criticality."

To further clarify, in the Office action, the statement, "the claims were amended to include the allegedly critical limitation only after three office actions rejecting the claims and the filing of a continuing application," the language, "the claims," refers to the claims that were not originally limited to the alleged critical limitation, such as claim 1.

In addition, appellant proffers particular advantages for the instant claimed invention.

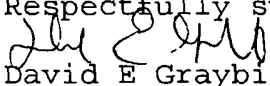
Regardless, it is respectfully submitted that reasons for, or advantages resulting from, doing what the applied prior art has suggested, is not demonstrative of nonobviousness. In re Kronig 190 USPQ 425, 428 (CCPA 1976); In re Lintner 173 USPQ 560 (CCPA 1972). Indeed, the prior art teaches the claimed invention; therefore, the alleged reason or advantage is an inherent result of the prior art process. Furthermore, the

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prior art motivation or advantage may be different than that of appellant while still supporting a conclusion of obviousness. In re Wiseman 201 USPQ 658 (CCPA 1979); Ex Parte Obiaya 227 USPQ 58 (Bd. of App. 1985).

For the above reasons, it is believed that the rejections should be sustained.


Respectfully submitted,



David E Graybill
Primary Examiner
Art Unit 2827

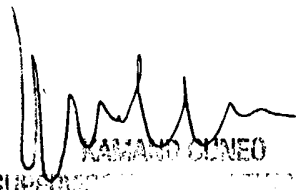
DG

September 11, 2003

Conferees

Olik Chaudhuri 

Kamand Cuneo 


KAMAND CUNEO
SUPERVISOR
TECHNOLOGY CENTER 2800

ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW.
SUITE 1000
WASHINGTON, DC 20006